STUDIA UNIVERSITATIS BABEȘ-BOLYAI OECONOMICA, VOLUME 61, ISSUE 2, 2016

NEW APPROACHES IN PUBLIC SECTOR REPORTING AT EUROPEAN UNION LEVEL

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Abstract. This study focuses on the fiscal reporting basis according to the European System of Accounts (ESA 2010), by assessing it closely related to the national accounting systems (financial/budgeting accounting). It provides a holistic approach to the EU members states positioning about the fiscal reporting (through budgeting/statistical accounting), by assessing it through the connection with the financial accounting based on International Public Sector Accounting Standards (IPSAS), using accrual basis as a benchmark. The results reached by applying the cluster analysis and the Multidimensional Scaling technique reveal the complexity of the transition, identifying different positioning of the EU countries in the accrual world, thus enriching scientific literature by providing valuable evidence for future analysis regarding accounting regulation in the public sector.

JEL Classification: M48, H83, G38, C40

Keywords: fiscal reporting, ESA, financial reporting, IPSAS/EPSAS, European Union, public sector

1. Introduction

Public sector efficiency gradually became a major goal given that many institutions have turned into entrepreneurial entities due to the independence of their budgetary financing. Increasing stakeholder decision-making power over the bureaucracy and, thereby, functioning like private entities (Patrick and French, 2011) made that the introduction of private sphere management techniques in the public sector (Roje et al. 2012) have become a certainty.

Comparability and information accuracy are important pillars of the qualitative management, defined by high transparency and incentive performance (Gajda-Lupke, 2009). Besides financial reporting, the fiscal one is also essential for reinstalling transparency and trust, thus maintaining stability, and above all these, for providing the statistical framework.

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In this context, the accounting rules and national accounts have a vital role across Europe. Accrual accounting and budgeting are connected with the financial and fiscal policy, the last one being closely linked to the macroeconomic information systems (Marti, 2006).

In this process, the international organizations had an active role in supporting the adoption of the accrual basis of governmental accounting. Through this study, we provide a comparison at the EU country-level of the accounting treatment applicable to several key items used by the two main governmental reporting systems: general-purpose financial reports (International Public Sector Accounting Standards - IPSAS) and statistical/fiscal reports (European System of National Accounts - ESA 2010).

The main goal of this study is to combine the conceptual approach of the fiscal reporting through accrual basis (ESA 2010) in the context of European regulations, with the pragmatically one aiming to identify the degree of accrual basis implementation at EU country-level, in both financial accounting and budgeting/ statistical framework. Thus, the accrual world, the keystone of the European Union economic governance, became a benchmark in our research.

The originality of the study is provided at several levels. Theoretically, fiscal reporting issues are conceptually presented through scientific literature, highlighting the most significant trends in the public sphere with impact on the European practices. Practically, identifying the current state of the fiscal reporting system, connected with the financial one among all EU countries is a useful reference base for quantifying the magnitude of changes that will govern the public sector.

The main findings of our research reveal that developing the fiscal reporting in an accrual world as a basis for the governmental accounting is an important milestone in the evolution and transformation of the public sector. The study captures the institutional approach of the concept by presenting the influences of EU decision-making bodies along with an assessment of the EU member states ability to adapt, starting from the current situation. By assessing the magnitude of changes, EU countries' openness towards accepting imposed policies must be grounded in decisions and actions that respond to their needs.

The paper unfolds as follows, apart from the present introduction: the first section presents current trends in developing financial and fiscal reporting through accrual accounting and budgeting process that were considered triggers of the planned changes in the public sector. Then, focusing on the accrual concept, we presented the main tools used by the international bodies in developing the public sector accounting (ESA and IPSAS/EPSAS). In the following, the research methodology is outlined, the Hierarchical Cluster Analysis and the Multidimensional Scaling Technique being used for mapping the EU countries' sample according to their fiscal and financial reporting systems. The results and discussion section reveals the views and experiences of various EU member states regarding their public sector accounting system, the challenges they have encountered in implementing different elements of accrual accounting, budgeting/statistical reporting and IPSASs provisions in their particular contexts. The final section offers some concluding remarks, emphasizing the need for harmonization of European public sector accounting, thus providing an array of opportunities for future accounting research studies.

2. Theoretical background

2.1 Trends in financial and fiscal reporting in the public sector

The budgeting/statistical and financial accounting systems are the two central pillars that support performance in the public sector. The existence of a large diversity of circumstances for the public sector reporting raise difficulties in getting reliable, accurate and comparable accounting and statistical data, used to sustain decisions regarding EU financial and fiscal policy. A decisive step to enhance the performance for both micro and macro perspectives is the need for standardized procedures able to increase the information's quality and comparability.

In this regard, various international/European bodies involved (e.g. IPSASB, European Commission and European Council) support literature opinion. Consequently, as Heald and Hodges (2015) claimed, a reliable and transparent disclosure of the financial and fiscal positions of the EU countries becomes necessary given that these are strongly connected in economic and political approaches.

Thereby, aiming to ensure this fiscal standardization, European Council (2011) provided the following requirements within its official documents: *"As concerns national systems of public accounting, Member States shall have in place public accounting systems comprehensively and consistently covering all sub-sectors of general government and containing the information needed to generate accrual data with a view to preparing data based on [ESA]."* (European Council, 2011, article 3.1).

Chasing a similar goal, namely financial reporting standardization, the European Commission (2013) mentions that *"Accruals accounting is the only generally accepted information system that provides a complete and reliable picture of the financial and economic position and performance of a government […]"* (European Commission, 2013, p. 3).

Consequently, the accrual world became a benchmark in this study, being encountered in various accounting concept approaches (financial or budgeting/ statistical), while the adoption of accrual basis by governments became the framework for IPSAS and SEC 2010 references.

The motivation of this study starts from these scientific and regulatory arguments which demonstrate that financial and fiscal policies will be based on the two forms of government accounting, whose junction point is the accrual concept. In this broad context of transformations in the financial and budgeting/statistical accounting, the primary objective of this study is to demonstrate that the accrual basis is the key determinant of improving financial and fiscal reporting in the EU.

Thus, the accrual level is assessed from two perspectives: as a reference basis for the financial accounting and as an implementation level for IPSAS references. For this purpose, the paper will follow two important research questions:

RQ1. Which is the level of accrual basis adoption in the fiscal reporting through the budgeting accounting in relation to the financial reporting through financial accounting system?

RQ2. Which is the interdependence between the fiscal reporting system through the budgeting accounting and the level of IPSAS practical implementation as a basis for the financial accounting system?

For answering both research questions, all EU countries' status was considered as the reference point for the analysis performed. While the first research question tried to identify all 28 member states' status regarding both accounting and fiscal reporting systems (cash versus accrual), the second one expanded our research considering the international standards for accrual-based accounting (IPSAS) in the public sector.

According to literature, evidence from various countries' accounting reforms reveal that IPSAS could not be easily implemented due to their different perception, some of them experiencing a strong tendency to apply accrual accounting, whereas others directed their efforts towards national reforms (Caperchione and Lapsley, 2011; Christiaens et al., 2014). However, IPSAS represent an indisputable reference for potential EU harmonized public sector accounts, thus being a suitable starting point for the future development and adoption of a set of EPSAS. This primary goal calls for strong EU governance considering the differences between countries regarding their budgeting and accounting systems, which might cause difficulties when it comes to changes even under international pressure (Rossi et al., 2014). Thus, the implementation of EPSAS accrual accounting would be a major reform for those countries with a strong accounting tradition that currently use only cash accounting and pay significant attention to budgeting rather than seeing the importance of harmonized information (Pina et al., 2009a).

The results of the study will outline a map of governmental accounting basis in the European space, where each country will be positioned depending on the current state of accrual adoption. Analyzing the level of IPSAS implementation enables us to quantify how this system helps in implementing accrual concept, the basis for ESA 2010. The emergence of this new development direction regarding accounting will influence the financial and fiscal performance evolution in the EU countries.

2.2 Essential aspects regarding ESA 2010, coordinator of fiscal reporting

2.2.1 ESA 2010 references – the basis for budgeting accounting in the European public sector accounting system

A part of the financial contribution of each EU member state (the fourth own resource for the EU) is estimated based on the results of the national accounting. It is one of the reasons why the European System of National Accounts (ESA) must ensure that all members accomplish the same measurements. How appraising individual initiative is subject to various interpretations, the ESA should try to clarify and point at the highest level, the assesment techniques of the economic variables.

ESA is defined as an accounting framework, applicable at an international scale, enabling an analytical and systematic description of a country's economy, its components and relations with other economies (European Parliament / Council, 2013). ESA creation was imposed by the need to provide correlated information for performing calculations and macroeconomic analyses, thus becoming the primary macroeconomic research tool used in statistics' world.

Historically, the issue of a uniform reporting has been a constant concern in the international environment. ESA appearance in 1970 required an interdisciplinary work of the international bodies involved in the process of developing a system of national accounts (e.g. Eurostat) able to satisfy the economic and social policy of the European Community. That document constituted the community version of National Accounts System (NAS), the second edition of the report being published in 1979.

European Community (EC, 1996) established a system of national accounts (ESA 95) aiming to ensure the comparability of information provided by the Community members. This version was revised, in agreement with the structure of EU countries' economies, to create a common framework for the collection, compilation, transmission and evaluation of the European economic accounts (European Parliament / Council, 2011).

ESA (2010) is used since September 2014 (European Parliament / Council, 2013) by all EU member states, imposing the obligation of publishing the national accounts according to the methodology approved by Regulation (EU) no. 549/2013 of the European Parliament / Council.

All EU countries have already adopted and implemented gradually ESA directives. Starting from elementary statistics, each country's national accounting technicians estimate, calculate and analyze economic flows, forming the whole national system. Due to frequent inconsistencies in the results of elementary statistics, as well as the information gaps in some sectors, there are complex issues that often arise. It is also the reason why after the year 2000, specialized bodies from United Nations and the European Union regularly acted to refine and broaden its use.

2.2.2 ESA adoption stage in the European Union member states and particularly in Romania

National authorities from different countries, as well as international financial institutions (e.g. International Monetary Fund, World Bank, European Central Bank), have launched various initiatives to collect further statistical data for covering information gaps. One of these is the action of the Working Group on Reinforcing International Cooperation and Promoting Integrity in Financial Markets consisting of finance ministers and central bank governors of the Group of 20 (G-20). This group requested the International Monetary Fund and the Financial Stability Committee to review those areas where information is missing and to propose measures for data collection.

The result of this action is the legislative package for improving economic governance (known as the "Fiscal Compact" or the "Six pack"), consisting of five regulations and one directive, adopted by the European Parliament and Council in November 2011. Among other implications upon statistics, this legislative package (notably Council Directive 2011/85/EU on requirements for budgetary frameworks of the Member States) contains provisions that have an impact on statistics collection and dissemination of fiscal data.

According to Eurostat/European Commission (2013), ESA accounts are produced in many EU countries from cash-based public accounting systems, to which a series of "accruals adjustments" are made. These adjustments are estimated on a macro basis, and as a consequence they are approximations. Where there are no accruals accounts at the micro level, financial transactions and balance sheets have to be derived from a mix of different sources, leading to a "statistical discrepancy" between the deficit compiled via non-financial accounts and the deficit compiled via financial accounts.

Official reports raise the issue of harmonization at European level given that ESA data are derived from Member States' public accounting data, which vary from purely cash-based to full accruals, passing through many intermediate mixed models (Eurostat/European Commission, 2013).

Applying ESA in Romania

The collapse of the communist regime stimulated massive changes in the Central and Eastern European countries (CEE) in a very short time (McKendrick, 2007). Since 2006, the new Romanian accounting framework has imposed the accrual basis for financial reporting in the public sector (Nistor and Deaconu, 2014). However, cash accounting is still used in assessing the macroeconomic impact of public sector activity and informing judgments about the relationship between fiscal and monetary policy. Consequently, budgeting/statistical accounting includes information on the cash basis, thus causing a lack of consistency in processing the accounting information.

The fiscal reporting facilitates the notification of deficits, according to ESA, by improving the reporting system regarding the allocation of the public resources to projects and programs considering performance criteria (McKendrick, 2007). In Romania, an EU member state, the performance of the national economy is assessed through ESA, by measuring the level of development of various units, through identical measures and methods aiming to compare them internationally. Fundamentally, for Romania, ESA implementation targets data collected at the reporting unit level aiming to perform macroeconomic statistics that can be used as micro-data, serving financial stability purposes, provided that data rely on harmonized definitions and reporting standards.

ESA reporting, a consequence of the financial crisis, appeared as an argument for the economic policy makers due to the need to increase the quality of statistical data by expanding their coverage and improving their timeliness. Methodologically, economic realities reflected through ESA have grouped the accounts by both space characteristics at national, multi-country and regional level, and time features in quarterly, annual and several years at a time accounts.

As a practical example of using ESA versus IPSAS system in the military accounting field, ESA 2010 extends the scope of military capital goods by including military weaponry and support systems that are used for more than a year for defence services. Consequently, GDP and GNI is increased by the amount of military equipment purchased regrouped from intermediate consumption in gross fixed capital, plus the value of fixed capital consumption calculated for the equipment in use. Data sources used for evaluation of military equipment expenditure were the budget executions and the additional information provided by the Ministry of Defence, prepared in accordance with IPSAS system.

4. Research design and results

4.1 Methodology framework

Aiming to achieve our goal, the exploratory data analysis was carried out at EU country-level to compare the state of the art developments in public sector across European countries, from both accounting and fiscal reporting system. The study was conducted on two different stages focusing on the changeover of the fiscal reporting basis according to ESA 2010 in connection with the national accounting systems, followed by the current status of IPSAS regulation and implementation at EU country level.

Firstly, looking for assessing *the level of accrual basis adoption in the fiscal reporting through the budgeting accounting in relation to the financial accounting system (RQ1)*, we tried to identify all 28 member states' status regarding both accounting and fiscal reporting systems. Afterwards, we expanded our research regarding *the fiscal reporting system through the budgeting accounting by analysing it in connection with the level of IPSAS practical implementation as a basis for the financial accounting system (RQ2),* considering that these international standards for accrual-based accounting in the public sector are not mandatory at the EU level.

In this respect, we combined the *hierarchical cluster analysis* with the *Multidimensional Scaling technique (MDS)* aiming to highlight possible interconnections designed to support a future harmonization towards accrual basis in both accounting and fiscal reporting.

In contrast to prior studies conducted on the public sector that used the same methods on samples of countries (Pina et al., 2009a; Pina et al., 2009b), our research comprises all EU member states' position on accrual basis accounting and fiscal reporting systems. Thus it is a comprehensive study aimed to promote a harmonized reporting, ensuring reliability, comparability and transparency, which can be used for fiscal monitoring, budget surveillance or sound decision-making within the EU countries.

In this respect, for revealing the *fiscal harmonization (Fisc_Rep),* we considered the reporting basis of the fiscal data published by the EU member states on the European Commission's initiative of assessing the compliance with the Council Directive 2011/85/EU, article 3(2) related to fiscal data (EC, 2015). Thus, we assigned "1" value for cash-basis fiscal reporting; "2" for mixed / more bases for a sub-sector and "3" for accrual-basis.

For assessing the *accounting harmonization*, firstly, we considered for our analysis the accounting system of each country, briefly described in Table 1, followed by a comprehensive analysis of the IPSAS regulation and implementation. Thus, for the *accounting system (Acc_Syst)* we assigned "1" value for cash-basis; "2" for a combination between cash and accrual; "3" for modified accrual and "4" for accrual-basis.

Table 1. The accounting system

Accounting Model	Description
Cash accounting	Both statements of financial performance and position are cash based
Modified cash accounting	Both statements of financial position and performance are modified cash based
Accrual accounting	Both statements of financial position and performance are accrual based
Modified accrual accounting	Both statements of financial performance and position are modified accrual-based or when at least one of the two statements is on a modified accrual basis while the other is accrual-based.
Combination of accrual and cash accounting	Either different public entities apply different standards within the same subsector of government or the same entity uses both cash and accrual accounting

Source: PriceWaterhouseCoopers (2014)

Similarly, using scores ranging from “1” to “4”, we the appreciated *the level of IPSAS practical implementation* through *the takeover degree of IPSAS into national legislation (Acc_IPSAS),* basing on the results of a survey conducted by PricewaterhouseCoopers (2014). Accordingly, we assigned “1” value when there are explicit references to IPSAS as the primary basis for national accounting regulations; “2” or “3” when IPSAS are used in practice as a source of inspiration / primary basis for developing accounting standards without explicit reference; “4” when IPSAS are not used as a source of inspiration for national accounting rules.

After performing the cluster analysis on the countries’ sample, the initial step of our research methodology addressing both our research questions, we validate the five cluster solutions reached by applying *the homogeneity test* (Levene).

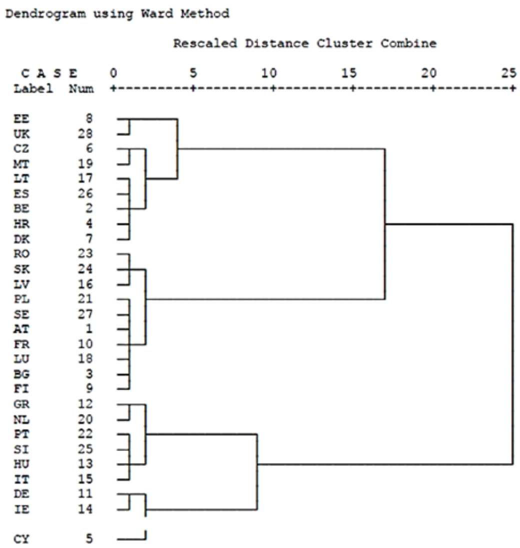
In the next step, to complete the results of the cluster analysis, we applied the *Multidimensional Scaling (MDS) technique* for revealing the structure of our countries’ dataset into two dimensions: fiscal reporting vs. accounting reporting, represented by the accounting system (RQ1), respectively the level of IPSAS practical implementation (RQ2), thus answering both our research questions. The reliability of the two mappings is ensured by the fit of our MDS solutions assessed using *the Stress test (Kruskal’s type I),* which indicated an excellent fit in both cases.

4.2 Data and results

Wondering upon the status of EU countries regarding both budgeting/ statistical and financial accounting systems, we started the empirical analysis searching for an answer to our first research question *(RQ1)* focused on *the relationship between fiscal and financial reporting through the accrual basis adoption*.

In this respect, we turned to *the hierarchical cluster analysis,* a multidimensional statistical method used to classify objects (in our study EU countries) into several groups (clusters) comprising the most similar units, which instead differ as much as possible between clusters (Everitt, et al. 2011).

Fig. 1: Dendrogram – budgeting/statistical vs. financial accounting system at EU country-level



The dendrogram shows in a graphic way the process of the whole analysis in both directions – forward and backward (see Figure 1.), and thus the optimal result could be found.

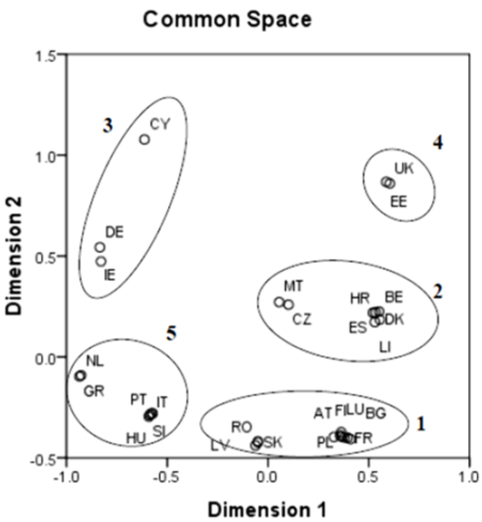
As it can be noticed, we divided our sample of all 28 EU member states into five clusters by considering the resemblance between countries regarding *the level of accrual basis adoption in the fiscal reporting through the budgeting accounting in relation to the financial accounting system* (see Table 2).

Table 2. EU country assignment to clusters for revealing the relationship between budgeting/statistical and accounting systems through the accrual basis adoption

Cluster	Countries
Cluster 1	Austria, Bulgaria, Finland, France, Latvia, Luxembourg, Poland, Romania, Slovakia, Sweden
Cluster 2	Belgium, Croatia, Czech Republic, Denmark, Lithuania, Malta, Spain,
Cluster 3	Cyprus, Germany, Ireland,
Cluster 4	Estonia, UK
Cluster 5	Greece, Hungary, Italy, Netherlands, Portugal, Slovenia

To validate our result, we performed the *homogeneity test* by analyzing whether the variances of the clusters created are significantly different, the *Levene's test* significance (0.000) justifying our decision for a five-cluster solution.

Figure 2: A graphical illustration of EU member states, according to the status of the budgeting/statistical and financial accounting systems



Cluster 1
AT (Austria)
BG (Bulgaria)
FI (Finland)
FR (France)
LV (Latvia)
LU (Luxembourg)
PL (Poland)
RO (Romania)
SK (Slovakia)
SE (Sweden)

Cluster 2
BE (Belgium)
HR (Croatia)
CZ (Czech Republic)
DK (Denmark)
LI (Lithuania)
MT (Malta)
SP (Spain)

Cluster 3
CY (Cyprus)
DE (Germany)
IE (Ireland)

Cluster 4
EE (Estonia)
UK (United Kingdom)

Cluster 5
GR (Greece)
HU (Hungary)
IT (Italy)
NL (Netherlands)
PT (Portugal)
SL (Slovenia)

Dimension 1 – Financial accounting system
Dimension 2 – Budgeting / statistical accounting system

To provide a graphical representation of the cluster analysis (see Figure 2), we used the *Multidimensional Scaling (MDS) technique* for mapping the objects (in our study EU countries) that are perceptually interrelated, thus completing the results already achieved. Consequently, by assigning all objects to locations in a dimensional space, we provide the structure of our countries' dataset into two dimensions: Financial accounting system (dimension 1) vs. Budgeting/statistical accounting system (dimension 2). The result of our solution indicates *a good fit of correspondence* between distances among points on the MDS map according to the *Stress test (Kruskal's type I)* whose value is 0.0547 (Kruskal and Wish, 1978). Consequently, our mapping reveals *the level of accruals basis adoption in both budgeting and financial accounting systems*, thus providing evidences for answering our first research question *(RQ1).*

As it can be seen, there are few countries already adopting full accrual basis for the fiscal data reporting (e.g. Cyprus from Cluster 3, respectively Cluster 4 comprising Estonia and UK). However, the majority of countries situated on the right side of the map, namely Cluster 1, 2 and 4, show a high level of accrual basis adoption (including its intermediate form of modified-accruals) in their accounting systems, thus revealing that there is a wide tendency towards harmonization in the public sector. Nevertheless, there are countries (e.g. Greece and the Netherlands from Cluster 5, respectively Germany and Ireland from Cluster 3), whose both budgeting/statistical and accounting systems are mostly based on cash. In these cases, harmonizing both fiscal and financial reporting towards accrual basis might face barriers, due to existing systems tradition and their reluctance upon changes.

In the following, we will emphasize the main features of each cluster mapped according to the scores reached on the two dimensions revealing their current status of both budgeting/statistical and accounting systems from cash vs. accrual basis point of view.

The first cluster includes countries where their budgeting/statistical and financial accounting systems are on opposite basis, respectively on cash versus accrual basis. In most of them, budgets and budgetary execution and reporting are based on the cash or modified cash principle, hence both types of information (cash and accrual) coexist in governmental accounting. However, there are countries, which despite adopting accrual basis in their accounting system (e.g. Bulgaria, Poland, Finland) they have not introduced it comprehensively, budget preparation and reporting still remaining cash-based. Consequently, a consistent implementation of ESA 2010 requires a strong internal coordination, as well as benchmark revisions in different areas.

The second cluster includes countries having a mixed budgeting/statistical accounting system, while the financial one is mostly accrual-based, the modified-accrual basis being encountered only in few countries (e.g. Latvia, Romania, Slovakia). Thus, the introduction of fiscal reporting narrowed the gap between government accounting and national accounting since the introduction of ESA95 (Montesinos and Vela, 2000). The adoption of the new standard (ESA2010) not only meet a mandatory European requirement, but also modernized its estimation methodology in order to make them comparable with all advanced economies of the world.

The third cluster includes countries having a mixed towards accrual budgeting/statistical accounting system, while the financial one is still cash-based. Thus, within this cluster, budgeting has a greater role than financial reporting (Heiling et al., 2013), cash basis still being at the core of the budgeting process (Brusca et al., 2015). Germany, for example preferred to maintain the traditional budget structure unchanged rather than pursing expensive accrual accounting reforms (Jones et al., 2013).

The fourth cluster includes countries whose both budgeting/statistical and financial accounting systems are on the accrual basis. These are the only two countries (UK and Estonia) from our sample, which have introduced full accrual basis in both subsystems, making them to be considered the leaders for the convergence between the two reporting systems (Broadbent & Guthrie, 2008), by being the early adopters of accrual accounting and budgeting (Hyndman & Connolly, 2011).

The fifth cluster includes countries whose both budgeting/statistical and financial accounting systems are mostly on cash basis. These countries have to face the greatest challenges by moving towards accruals in both accounting system. However, some of them (e.g. The Netherlands) acknowledged the benefits of this harmonization for a while (Keuning and Tongeren, 2004), admitting that it could facilitate benchmarking, increasing national and international comparability of government reports, after undertaken comparative international research (Brusca et al., 2015).

In conclusion, the results show that accrual basis is widely adopted in the majority of accounting systems, and consequently it is suitable for a European-wide adoption in the budgeting/statistical accounting systems, too. Moreover, it is justified by the good positioning of the majority of countries at the confluence between mixed fiscal basis and modified accrual accounting basis, but tending towards full accruals, thus promoting a system of harmonised accrual-based accounting, providing transparent, comparable and reliable financial reporting, but also supporting the quality of fiscal data.

Relying on the above empirical results, we stepped into the second part of our study aimed to provide expended results *regarding the fiscal reporting system by analysing it in connection with the level of IPSAS practical implementation as a basis for the financial accounting system (RQ2).* To complete this part of our empirical analysis we used the same research methodology as in the previous section of our study.

Consequently, by applying *the hierarchical cluster*, we reached to the Dendrogram (see Figure 3) that shows the individual steps of the analysis and its results, the horizontal axis representing the distance between individual clusters, while the vertical axis helping us to find the required rate of clustering.

As it can be noticed, by considering the resemblance between the 28 EU countries regarding *the budgeting/statistical accounting system and the financial one, through IPSAS practical implementation,* we chose the five-cluster solution (see Table 3) justified by the *homogeneity* test's result, which reveals that the clusters created are significantly different (*Levene's test* significance = 0.000).

Figure 3: Dendrogram – budgeting/statistical vs. financial accounting system (through the level of IPSAS practical implementation) at EU country-level

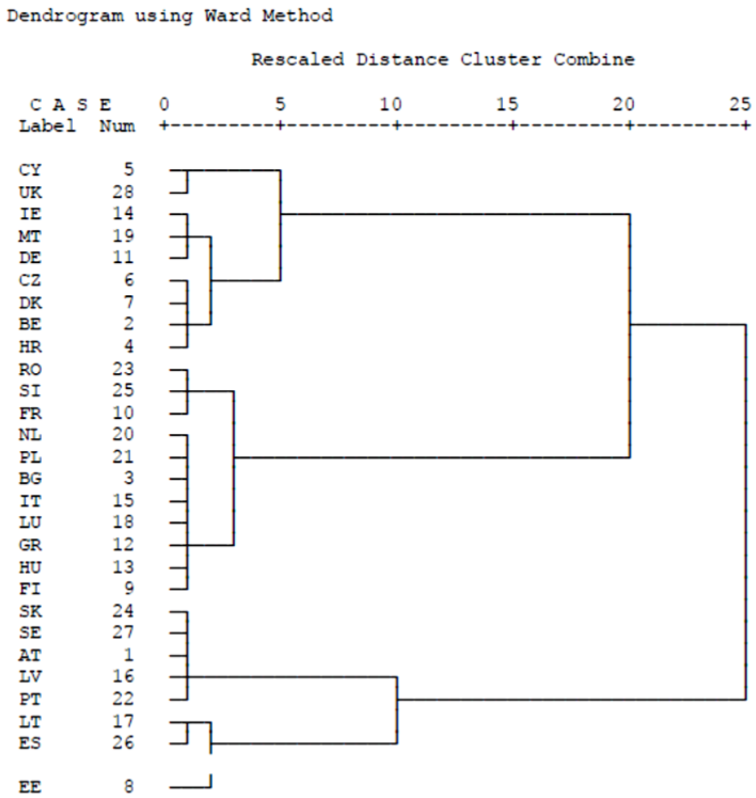
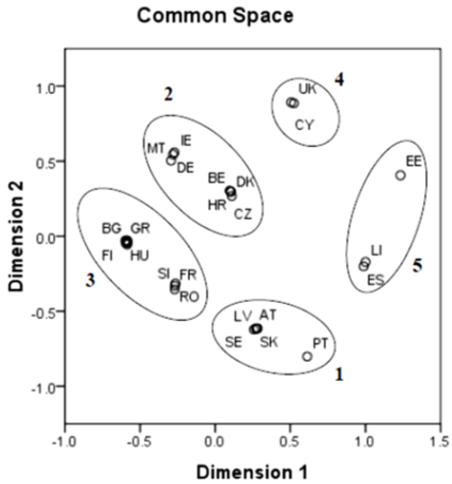


Table 3. EU country assignment to clusters for revealing the relationship between budgeting/statistical and financial accounting systems through IPSAS practical implementation

Cluster	Countries
Cluster 1	Austria, Latvia, Portugal, Slovakia, Sweden
Cluster 2	Belgium, Croatia, Czech Republic, Denmark, Germany, Ireland, Malta,
Cluster 3	Bulgaria, Finland, France, Greece, Hungary, Italy, Luxembourg, Netherlands, Poland, Romania, Slovenia
Cluster 4	Cyprus, UK
Cluster 5	Estonia, Lithuania, Spain

To complete the cluster analysis's results, we finally mapped our sample of countries into a graphical representation (see Figure 4), using the same *MDS technique*, the dimensional space comprising countries' dataset consisting of the following two dimensions: Financial accounting system through IPSAS practical implementation (dimension 1) vs. Budgeting/statistical accounting system (dimension 2).

Figure 4: A graphical illustration of EU member states, according to the status of the budgeting/statistical and financial accounting systems (through IPSAS practical implementation)



Dimension 1 – Financial accounting system
(through IPSAS practical implementation)
Dimension 2 – Budgeting / statistical accounting system

<u>*Cluster 1*</u>
AT (Austria)
LV (Latvia)
PT (Portugal)
SK (Slovakia)
SE (Sweden)

<u>*Cluster 2*</u>
BE (Belgium)
HR (Croatia)
CZ (Czech Republic)
DK (Denmark)
DE (Germany)
IE (Ireland)
MT (Malta)

<u>*Cluster 3*</u>
BG (Bulgaria)
FI (Finland)
FR (France)
GR (Greece)
HU (Hungary)
IT (Italy)
LU (Luxembourg)
NL (Netherlands)
PL (Poland)
RO (Romania)
SL (Slovenia)

<u>*Cluster 4*</u>
CY (Cyprus)
UK (United Kingdom)

<u>*Cluster 5*</u>
EE (Estonia)
LI (Lithuania)
SP (Spain)

The *validity of the MDS map* resulted is ensured by the Stress test *(Kruskal's type I)* reaching a value of 0.0733 that indicates a *suitable fit of correspondence* between distances among countries. Consequently, our mapping reveals *the relationship between budgeting/statistical accounting system* on the one side and *the financial one through IPSAS practical implementation* on the other side, thus providing evidences for answering our second research question (RQ2).

As follows, we will briefly present the location of each cluster on the map based on scores reached on the two dimensions, justifying their place by referring to the status of the accrual basis adoption in the fiscal reporting closely related with their accounting systems through IPSAS referential, and highlighting some experiences encountered by different countries.

The first cluster includes countries, where IPSASB's provisions are either the primary basis for developing national accounting standards (e.g. Portugal) or widely used in practice, without explicit reference to legislation, thus showing a high degree of IPSAS implementation (e.g. Austria, Latvia, Slovakia and Sweden), but their statistical accounting is still on cash basis. Moreover, there are government sub-sectors (e.g. Portugal) whose accounting systems are not harmonized (Gomes dos Santos and Sarmento, 2014) and, overall, there is a lack of comparability between the information provided by the central and local government. Anyway, national government accounting regulation of these countries were the most inspired by international standards (Oulasvirta, 2014; Hyndman et al., 2014) being the most aligned to IPSAS should would not raise problems.

The second cluster, situated on the opposite side, includes countries where the statistical accounting system is mixed, but IPSAS is not used at all as a source of inspiration for developing accounting standards or it is used in practice without explicit reference and not as a primary source. These countries (e.g. Slovenia, Malta) are a kind of “hybrid of cash and accrual accounting system” (Vasicek et. al, 2010; Jones and Caruana, 2014), being more preoccupied with the budgeting process (e.g. Belgium), thus rarely applying IPSAS recommendations (e.g. Croatia). Most countries are reluctant to such a major change like IPSAS implementation (e.g. The Czech Republic, Belgium), having a negative attitude towards it and giving the impression of wasted efforts (Otrusinova and Pastuszkova, 2013). Anyway, some countries (e.g. Germany) realized that accrual information should support budgetary decisions (Portal, et al, 2012), thus changing their radical opinion regarding accrual accounting reform (Adam, et al., 2011). Consequently, even if IPSAS is generally perceived as an abstract system by countries included in this cluster, aligning to ESA 2010 requirements did not seem to be a very big challenge for them, as proof of their mixed fiscal reporting.

A different situation appears to be in the case of the third cluster including eleven countries that did not pay attention to IPSAS referential, thus not being used as a source of inspiration for national regulations, and provided their fiscal data reporting on cash basis. Most of these countries prefer their strong developed traditional accounting system, rather than the conceptual framework promoted by IPSASB, unknown in some cases (Oulasvirta, 2014). Consequently, these countries not only are far away from an IPSAS approach, but also on the very beginning of the accrual-based statistical accounting still having many adjustments and reconciliations to make according to ESA 2010 requirements.

The fourth cluster includes countries (e.g. UK, Cyprus) that reported their fiscal data on the accrual basis, while IPSAS are used in practice without explicit reference, without being the primary source of inspiration for developing accounting standards. In these cases, the new public management reform seems to have had a major influence towards both budgeting and accounting systems (Hyndman et al., 2014), considering their fast move from a cash approach to the accrual one in the case of both statistical reporting and the financial one, represented by IPSAS adoption.

An almost similar situation is revealed by the fifth cluster including countries (e.g. Estonia, Lithuania and Spain), all having the highest degree of IPSAS adoption, due to its explicit reference as the primary basis for developing their national accounting standards, and reporting their fiscal data mostly on the accrual basis. Aiming to increase their credibility, resulting from widely adopting IPSAS (Brusca, et al., 2013) these countries behaviors were mainly influenced by institutional pressures, which lead to the fastest alignment to both IPSASB and ESA provisions.

In conclusion, although there still are countries having diverse views, quite reluctant about the accrual bases (especially Cluster 1 and Cluster 3), the current status of IPSAS implementation creates prerequisites for an international harmonization of the statistical reporting and the financial one, through IPSAS adoption, towards an accrual based approach. Thus, our results are quite encouraging even for a future mandatory adoption of EPSAS at European level.

5. Conclusions

Under the pressure of the New Public Management a greater need to reform both budgeting and financial accounting systems toward accrual basis was inevitable, the level of harmonization within EU member states still being highly inconsistent due to the diverse public sector financial reporting practices. Thus, prior surveys (e.g. E&Y, 2012; PwC, 2014; EC, 2015) reveal that European government accounting vary widely, ranging from cash-based accounting systems through a combination of cash and accrual, towards modified accrual to fully accrual based accounting systems. These are mainly the result of diverse views regarding government financial reporting objective, such as providing input data for statistical accounting to support ESA 2010 and EU fiscal surveillance (EC, 2013), respectively informing decision-making and promoting accountability at the institutional level (IPSASB, 2014). Amid these dynamic trends in the public sector, which is still far from being harmonized, we intended to enrich the research literature with our study aimed to provide a comprehensive overview in this field at European Union level.

The novelty of the research is ensured by its main objective aimed to compare the state of the art developments in public sector across European countries, from both accounting and fiscal reporting system. In this respect, we intended to assess the level of accrual basis adoption in the public sector among European Union countries and to understand to what extent a future harmonization towards accrual basis of both IPSAS and ESA 2010 is feasible.

Moreover, we added value through this paper by the research methodology employed that successfully combines hierarchical cluster analysis with the MDS technique for offering a comprehensive visual image of the current status of both budgeting/statistical and financial accounting systems in the EU public sector, thus covering a literature gap and encouraging the need for future developments towards harmonization.

Firstly, we tried to assess *the level of accrual basis adoption in the fiscal reporting through the budgeting accounting in relation to the financial accounting system (RQ1),* aiming to promote a system of harmonised accrual-based for both type of reporting.

Our results show that accrual basis is widely used in the financial accounting system, whereas budgeting/statistical accounting is mostly based on cash principles. Consequently, the fiscal image of the EU member states has been affected by unreliable and misreported ESA data derived from different accounting systems. In this so far miscellaneous mix of budgeting/statistical and accounting systems, there is a real need for a harmonized reporting, accruals accounting being the one that supports both the quality of fiscal data and the reliability and transparency of the financial information.

Evidences from country-level reveal that there is a European-wide strong interest in both sound financial and statistical reporting, able to increase fiscal transparency and achieve comparability within and EU member states, thus minimizing the incoherencies between the macro and micro-level accounting and reporting frameworks.

The IPSASB has been trying for some years to harmonize public sector accounting through its accounting standards and to narrow the differences between government financial reporting and statistical accounting (IPSASB, 2012, 2014). Considering these latest development trends in the public sector according to which the national government accounting standards of some EU members states are linked to IPSAS, either as a model or as a reference, we decided to deepen our research focusing on the so controversial accounting standards. Thus, aroused our second objective of this study aimed to analyse *the fiscal reporting system through the budgeting accounting in connection with the level of IPSAS practical implementation as a basis for the financial accounting system (RQ2).*

Our results show that governments are overall rather positive about IPSAS, which are already used as a source of inspiration by most of them, even if there still are countries that refused to adopt them, due to subjectivity and interpretation reasons. Anyway, there are countries (e.g. Germany, France) that express criticism regarding their use in the public sector, mainly due to the absence of consistency with budgeting practices. Thus, judging from the relationship between the IPSASB's standards and the European Systems of Accounts, it seems that IPSAS "left out of budgeting" (EC, 2013). Moreover, considering certain difficulties in implementing IPSAS, as EU member states' authorities confess within the process of public consultation, the drafting of a set of European public sector accounting standards (EPSAS), grounded differently from IPSAS, would confer the EU ability to develop its own standards.

In this context, there is a real demand for homogeneous forms of accounting to increase comparability and hence to support fiscal transparency across EU member states. Using the IPSASs as a starting reference, the European Commission (2013) has made a recommendation for the development of a set of harmonized public sector accounting and budgeting standards, i.e. EPSASs.

Accordingly, by bring financial transparency and comparability of government financial accounting and reporting across the EU Member States, EPSAS will make easier to translate public sector accounts into accrual fiscal statistics, while increasing also the timeliness and reliability of fiscal data, especially for local and regional governments. Moreover, the fiscal transparency benefits of good quality harmonized data are also indisputable alongside with its power of increasing public accountability, both stimulating the idea of openness within institutions. Also, these are perceived as key elements for enhancing good governance in the public sector and for creating a positive political and social environment.

In conclusion, there is an undeniable need for an EPSAS accrual accounting reform in the public sector, thus ensuring harmonization throughout implementing the accrual principle in budgetary accountancy systems, too, and offering data comparable among EU countries which can be used for budget monitoring, fiscal and economic decisions.

Acknowledgement

This work was supported by a grant of the Romanian National Authority for Scientific Research and Innovation, CNCS – UEFISCDI, project number PN-II-RU-TE-2014-4-0265.

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